INDEX

Note to the Reader: Throughout this index **boldfaced** page numbers indicate primary discussions of a topic. *Italicized* page numbers indicate illustrations.

A

accelerators. *See* design accelerators
active tabs, 5
Add Camera Action icon, 291–292
Add New Items field, 338
Add New Path icon, 29
Add Numeric icon, 338
Add or Remove Components tool, 143
Add Text Parameter option, 121, 139
Add to Custom Colors option, 118
Add To Quick Access Toolbar command, 3
Add Variable Set edge fillet, 165
Additional Resources settings, 18
alerts, **73–75**, *74–75*
aligning drawing views, **41–44**, *42–44*
All Content Center Suppressed representation, 177
ambient Shadows, 21, *22*
Analysis folder, 215
Analysis Visibility option, 215
angles
  bolts, 294
  camera roll, 289
  draft, **166**, *166*
Angular constraint, **99–100**, *100*
Animate Constraints dialog, 294, *294*
Animate Positional Representation dialog, 292, *292*
Animate tool, 278
animation
  assemblies
    motion, **196–197**, *197*
    relationships, **293–294**, *294*
    timeline and cameras, **290–292**, *290*
  component motion, **292–293**, *292–293*
  creating, 279, *279*
  rendering, **295**
Animation dialog, 279, *279*, 281
Animation Options dialog, 291, *291*
Animation Timeline tool, 290, *290*
Annotate tab, 148
annotations, **138**
  automated text, **139**
  balloons, **142–144**, *142–144*
  dimension values, **146–147**, *147*
  hole tables, **149–151**, *149–151*
  leader text, **139–140**, *140*
  ordinate dimensions and automated centerlines, **147–149**, *148–149*
  parts lists, **144–146**, *145–146*
  special symbols, **140–141**, *141*
  text style, **112**, *113*
appearance of drawing views, **44–46**, *45*
Application menu, 2–3, *3*
Application Options dialog, **15**
  Assembly tab, **18–19**
  Colors tab, **16–17**, *17*
  Display tab, **17–18**
  Drawing tab, **19**
  General tab, **16**
  Hardware tab, **18**
  Import/Export buttons, **16**
  Part tab, **19**
  Sketch tab, **19**
Application Options tool, 15
arcs, tangent, 80–81, *80*
Arrange button, 10
ASF Export Properties dialog, 281, *281*

COPYRIGHTED MATERIAL

Assemble tab, 6–7, *6*
Assemble tool, **107–108**, *108*
assemblies, **93**
  adaptivity feature within, **180–181**, *181*
  animating
    motion, **196–197**, *197*
    relationships, **293–294**, *294*
    timeline and cameras, **290–292**, *290*
  Assemble tool, **107–108**, *108*
  Bolted Connection Generator tool, **104–107**, *104–107*
  constraints, **95–101**, *95–97*, *99–101*
  Content Center, **102–104**, *102–103*
  converting bodies to components, **214–215**, *214*
  converting to iAssemblies, **328–331**, *329–331*
  creating, **93–94**, *94*
  draft analysis, **215**
  exploded views, **278–280**, *279*
  file paths, 30–31
  grounded components, **95**
  of iParts, **326–328**, *326–328*
  movies, **290–295**, *290–294*
  shaft characteristics, **184–186**
  weldments, **259–260**
assembly environment, **175**
  deriving components, **194–196**, *195–196*
  design accelerators. *See* design accelerators
  level-of-detail representation, **177–178**, *178*
  mirroring components, **192–194**, *193*
  motion, **196–197**, *197*
  view representations, **176**, *176*
Assembly Shrinkwrap Options dialog, 311, *311*
Assembly tab
  Application Options, **18–19**
  constraints, 95, *95*, 101
  iAssemblies, 331
Assign Symmetry icon, 307
associativity of drawing views, **60–61**, *61*
authoring MEP content, **313–315**, *313–315*
Auto Balloon tool and dialog, 143–144, *143–144*
Auto Reverse button, 279
AutoCAD data, **299**
  importing, **301–303**, *302–303*
  opening, **300–301**, *300–301*
AutoDrop mini-dialog, 103
automated centerlines, **147–148**, *148*
Automated Centerlines dialog, 148, *148*
automated text, **139**
automating
  exploded views, **276**, *276*
  table-driven products. *See* table-driven products
Auxiliary View dialog, 39, *39*
auxiliary views, 34, **39–40**, *39–40*

B

Background tab for scenes, 286
Balloon tool, 142
balloons, **142–144**, *142–144*
base components, 95
base features, extruding, **76–77**, *76*
base solids, 303
Base View tool, 35, 137
base views, 134
  description, 34
  placing, **35–36**, *36–37*
Baseline tool, **53–54**, *54*
Baseline Set tool, **53–54**, *54*
BaseMount dialog, *11*
Basic tab for color, 118–119
Bead Report tool, 271
beads
  extracting properties of, **270–271**, *270–271*
  weld, 260–261
Beam tab, 211, *211*
Bearing Generator dialog, **179–180**, *179*
behavior of drawing parts, **131–132**, *131–132*
Bend Number setting, 238
Bend Order Annotation tool, 238
Bend tab, 218, *219*
Bend tool and dialog, 224–225, *225*
bends in sheet metal parts, **227–229**, *227–229*

BIM (building information modeling), **310**
authoring MEP content, **313–315**, *313–315*
design, **310–313**, *311–312*
BIM Exchange tool, 310, 313
Blind Start Plane option, 105
bodies
converting to components, **214–215**, *214*
splitting, **202–203**, *202*
Bolt Angle constraint, 294
Bolted Connection Component Generator dialog, 104, *104*
Bolted Connection Generator tool, **104–107**, *104–107*
bolts
circles, 47–48, *48*
Content Center, 102–103, *102*
exploded views, 277–278
BOM Properties dialog, 142
Boss tool and dialog, 204–205, *205–206*
bosses, **204–206**, *205–206*
boundaries, detail, 50
Break Out tool and dialog, 130, *130*
break out views, **130**, *130*
Break tool and dialog, 135, *135*
break views, **135–136**, *135–136*
Browser
iLogic, 339, *340*
working with, 8–**10**, *9*
building information modeling (BIM), **310**
authoring MEP content, **313–315**, *313–315*
design, **310–313**, *311–312*
Bump Map tab, 285
By Layer override, 112

C

calculating
fillet welds, **260–261**, *261*
shaft characteristics, **184–186**, *184–185*
Calculation tab
Bearing Generator, 179–180
shafts, 184, *184*, 186
callouts, **50**, *50*
Camera: Essentials 1 dialog, 289, *289*
cameras
movies, **290–292**
settings, 288–**290**, *289*
Center Line settings, 156
Center Mark tool, 46
center marks
for dimensions, 51, *51*
working with, **46–49**, *47–49*
Center Point Circle tool, 78
Centerline tool, 47–48
Centerline Bisector tool, 49
centerlines
automated, **147–148**, *148*
working with, **46–49**, *47–49*
certification guide, **349**
Certified Associate Exam, **354–355**
Certified Professional Exam, **355–356**
Certified User Exam, **350–353**
Chain Dimension tool, 55
Chain Faces option, 213
Chain tool, **54–55**, *55*
Chain Set tool, **54–55**, *55*
Chamfer tool and dialog, 91, 262, *262*
chamfers
applying, **91–92**, *91–92*
weldments, **262–263**, *262–263*
Change Component option, 326
Change Component tool, 328, 332
Change tool and dialog, **254–255**, *254–255*
Change View Orientation button, 137
Chord Tolerance value, 231
Chrome, 27, *27*
Circle tool, 78
Circular Pattern tool, 87
circular patterns, **87–88**, *88*
Classification dialog, 314, *315*
Close Loop option, 74
Coil Size tab, 171, *171*
Coil tool and dialog, 171, *171*
coils, **171**, *171*

coincidence connections, 66
Coincident constraint, 121
Collar dialog, *11*
Collar part, 10, *11*
color and Color dialog
  Application Options settings, **16–17**, *17*
  changing, **26–27**, *27*
  layers, 115
  parametric solid models, **77**
  scenes, 286
  schemes, **16–17**, *17*
  styles, **117–119**, *119*
  surface textures, 285
  text, 112
Color Fill Source setting, 284
Color Override option, **26–27**, *27*
Colors tab, **16–17**, *17*
Column Chooser tool, 333
combining fillet types, **164–166**, *164–165*
Component option, 187
components
  converting bodies to, **214–215**, *214*
  deriving, **194–196**, *195–196*
  highlighting and enabled, **11**
  iAssemblies, 329, *329*
  mirroring, **192–194**, *193*
  motion, **292–293**, *292–293*
Components tab, 329, *329*
concentric holes, **86–87**, *87*
connections, coincidence, 66
Constrain End Points option, 302
Constrain panel, 64
Constraint Set tab, 95, 320
constraints, **95**, *95*
  adaptivity feature, 181, *181*
  Angular, **99–100**, *100*
  animation, 294
  assembly motion, **196–197**, *197*
  geometric, **67–69**, *67–69*
  iAssemblies, 330
  Insert, **98**, *99*
  iParts, 327–328, *327–328*
  Mate, **96–97**, *96–97*
  Tangent, **100–101**
  title blocks, 121, *121*
  Transitional, **101**, *101*
Content Center
  file paths, 30–31, *31*
  working with, **102–104**, *102–103*
Contour Flange tool and dialog, 226, *226*, **230**
Contour Roll tool and dialog, 230, *230*
Convert To Weldment tool and dialog, 260
converting
  assemblies for weldments, **259–260**
  assemblies to iAssemblies, **328–331**, *329–331*
  bodies to components, **214–215**, *214*
Copy Lighting Style dialog, 287
Corner Chamfer dialog, 234, *234*
Corner Edit tool and dialog, 222, *222*
Corner Override option, 222
Corner Round tool and dialog, 234, *235*
Corner tab, 218, *220*
cosmetic welds, **266–267**, *267*
Counterbore holes, 161
Create Block tool, 72
Create Camera From View option, 288
Create Chamfer tool, 91
Create Extrude tool, 76
Create Fillet tool, 77, 90
Create Flat Pattern tool, 236
Create iAssembly option, 329
Create iPart option, 323
Create Revolve icon, 83
Create Sketch icon, 79, 129
Create View tool, 276–277
Create Weld tool and dialog, 266–267, *267*
Create Welding Symbol option, 266
curves, inserting frame members on, **247–248**, *247*
Curves tab, 156, *156*
Custom View tab, 137–138
custom views, **137–138**, *137–138*
Cut Across Bend option, 229
Cut dialog, 229
Cylindrical Roller Bearings option, 180

D

data formats for import and export, **297–299**
Decal tool and dialog, 213, *213*
decals, **212–213**, *213*
Default Drawing File Type setting, 19
default settings for objects, **115–116**
Define Custom Colors option, 118
Deflection graphs, 185
degrees of freedom
  description, **98**
  geometric constraints, 68–69
  removing, 95
Degrees of Freedom (DOF) tool, 97–98
Delete Existing End Treatment(s) option, 249, 253
Derive Component tool, 194–196
Derived Part dialog, 194–195, *195*
deriving components, **194–196**, *195–196*
design accelerators, **178–179**
  adaptivity feature, **180–181**, *181*
  bearing generators, **179–180**, *179–180*
  Key Connection Generator, **189–192**, *189–191*
  shaft characteristics, **184–186**, *184–185*
  Shaft Generator, **182–184**, *182–183*
  spur gears generator, **186–188**, *186–187*
Design Guide setting, 187
Design tab
  Bearing Generator, 179, *179*
  bolted connections, 104, *104*
  Key Connection Generator, **189**, *189*
  shafts, 182, *182*, 184
  Spur Gears Component Generator, 186–187, *186–187*
Design window, **12–14**, *13–14*
Destination For 2D Data settings, 302
Detach Member option, 57
Detail tool, 40
Detail View dialog, 40, *41*
details and detail views
  adding, **46–50**, *47–50*
  creating, **40**, *41*
  description, 34
  exploded views, **280–281**, *280–281*
  placement, **50**, *50*
Diagnostics tool, 18
Die Formed option, 231
Dimension Display, 318, *318*
Dimension tool, 51
dimensions, **51**
  alerts, 74–75, *75*
  associativity, **60–61**, *61*
  Baseline and Baseline Set tools, **53–54**, *54*
  break views, 135–136, *136*
  Chain and Chain Set tools, **54–55**, *55*
  editing, **56–57**, *57*, **146–147**, *147*
  General Dimension tool, **51–52**, *51–53*
  Hole and Thread Notes tool, **57–58**, *58–59*
  Ordinate and Ordinate Set tools, **55–56**, *56*, **147–149**, *148–149*
  parametric sketches, 65, *65*, **69–70**
  retrieving, **59–60**, *60*
  styles, **112–114**, *114*
  text for, **112**, *113*
Directional tab for lighting, 288
Display tab, **17–18**
Display Options tab, 45, 271
Distance tool
  flat patterns, 236
  thickness, 300
documenting
  iParts and iAssemblies, **333–336**, *334–336*
  sheet metal parts, **238–241**, *239–240*
  welds and weldments, **270–273**, *270–272*
DOF (Degrees of Freedom) tool, 97–98
Double Hole Pull feature, 345
draft
  angles, **166**, *166*
  assemblies, **215**
  bosses, 204
Draft Options settings, 204
Draft tool, 166, 215
Drawer Front Size dialog, 345–347, *346*
drawing behavior of parts, **131–132**, *131–132*
Drawing tab, **19**

Drawing View dialog, 137
drawing views. *See* views
Drive Constraint tool and dialog, 197
Drive This Constraint option, 197
DWG/DXF Wizard dialog, 301

E

Edge Band Control rule, 340, 345
Edge Band tab, 346
Edge Select mode, 222
edges
  3D data, 306–308, *307–308*
  fillets, **77–78**, *78*, **89–90**, *90*
  inserting members on, **244–246**, *245*
Edit Dimension dialog, 52, 57, 60, 70, *70*, 146, *147*
Edit Dimension When Created option, 52
Edit Edge tool, 307–308
Edit Factory scope icon, 325
Edit Hole Note window, 58, *58*
Edit Hole Table: View Type dialog, 150, *150*
Edit Member scope, 325
Edit Model Dimension option, 60
Edit Rule dialog, 340–341
Edit Rule Drawer Size Control dialog, 341, *342*
Edit Sketch tool, 167
Edit Using Design Accelerator option, 184
editing
  detail view placement and callouts, **50**, *50*
  dimensions, **56–57**, *57*, **69–70**, **146–147**, *147*
  geometric constraints, **67–69**, *67–69*
  imported data, **304–308**, *305–308*
  views, **41–46**, *42–45*
efficiency features, **163**
  coils, **171**, *171*
  draft angles, **166**, *166*
  face replacement, **167–168**, *167*
  fillets
    to close gaps, **170**, *170*
    combining types, **164–166**, *164–165*
  mirroring, **168**, *168*
  offset work planes, **169–170**, *169*
  open profiles, **172**, *172–173*
Electrical Connector tool and dialog, 314, *314*
element suppression, **134**, *134*
Emboss From Face option, 210
Emboss tool and dialog, 210, *210*
embossing plastic parts, **209–210**, *210*
enabled components, **11**
End Fill tool, 263–265
End Section View tool, 312
End time in animation, 292
English tab, 243
engraving plastic parts, **209–210**, *210*
Environments tab
  animation, 292, 294–295
  BIM, 310, 313
  cameras, 288, 290
  lighting, 287
  scenery, 286
  still images, 282
  surface textures, 285
Equal constraint, 70
Essentials tab, 123
exam guide, **349**
  Certified Associate Exam, **354–355**
  Certified Professional Exam, **355–356**
  Certified User Exam, **350–353**
Examining Profile Problems tool, 73
Excel spreadsheets, **319–323**, *320–323*
Exclusion tab for iAssemblies, 329
existing designs for sheet metal parts, **232–233**, *233*
Expand Action Editor icon, 293–294
Explicit Reference Vector tool, 99
exploded views, **275**
  assembly instructions, **278–280**, *279*
  automated technique, **276**, *276*
  building, **276–278**, *277*
  details, **280–281**, *280–281*
Explosion Method option, 276–277
Export Building Components tool and dialog, 314–315
Export button, 16
exporting data
  formats for, **297–299**
  for rapid prototyping, **308–310**, *309*

external sources, linking parameters to, **319–323**, *320–323*
extracting bead properties, **270–271**, *270–271*
Extrude tool and dialog, 73, 269, *269*
extruding base features, **76–77**, *76*

F

Face Draft dialog, 166
Face option, 181
Face Fillet option, 170
Face tool and dialog, 221, *221*
faces
  draft angle, 166
  replacing, **167–168**, *167*
  sheet metal parts, **221**, *221*
fasteners, 103, *103*, 105, *105*
feature control through rules, **344–345**, *344*
File Open Options dialog, 301
file tabs, **10–11**, *10–11*
files
  opening, **3–4**, *4*
  project, **28**
    creating, **28–29**, *29*
    modifying, **29–31**, *29–31*
Fillet tool and dialog
  closing gaps, 170
  combining fillet types, 164–165, *165*
  edge fillets, 90, *90*
  flat patterns, 237, *237*
Fillet Weld Calculator (Plane) tool, 260
Fillet Weld dialog, 264, *264*, 268, *268*
Fillet Weld (Connection Plane Load) Calculator dialog, *261*
fillets
  3D data, 305, *305*
  to close gaps, **170**, *170*
  combining types, **164–166**, *164–165*
  edge, **77–78**, *78*, **89–90**, *90*
  plastic parts, **207–208**, *208*
  welds, **260–261**, *261*, **263–265**, *264–265*, **268**, *268*
Finish Custom View tool, 138
Fixed Distance option, 14
Flange tool and dialog, 221–224, *222–224*
Flat Pattern DXF Export Options dialog, 240
Flat Pattern Extents dialog, 237, *237*
flat patterns for sheet metal, **236–238**, *236–237*
Flip Beam Direction button, 211
Flip Fixed Edge option, 225–226
Flip Side icon, 233
Flush solution, **96–97**, *97*
focus limits of cameras, 289
Fold tool and dialog, 233, *233*
Form Editor dialog, 346, *347*
Format Column dialog, 334, *334*
Format Text dialog, 121, *122*, 139–140
formats for import and export, **297–299**
Forms tab, 346
Frame Generator, 243, **255–256**, *256–257*
frames, metal. *See* metal frames
Free Orbit tool, **12**
Frequently Used Subfolders icon, 29
Full Radius option for bends, 224
Full Round Fillet type, 164
Fusion Design window, 305–307

G

gaps, closing with fillets, **170**, *170*
gears
  Key Connection Generator, **189–192**, *189–191*
  LOD representation, 177
  spur gears generator, **186–188**, *186–188*
General Dimension tool, **51–52**, *51–53*
General tab, **16**
geometric constraints, **67–69**, *67–69*
Get Started tab, 28, 64
Go To Folded Part option, 236
Graph tab, 184–185
graphical user interface, **1–3**, *2–3*
  Browser, 8–**10**, *9*
  Design window, **12–14**, *13–14*
  file tabs, **10–11**, *10–11*
  highlighting and enabled components, **11**
  marking menus, **14–15**, *15*

opening files, 3–4, *4*
panels, **7**, *7–8*
Ribbon, **5–6**, *5–6*
status bar, **14**
graphics cards, 18
graphing shaft characteristics, **184–186**, *184–185*
Grill tool and dialog, 208–209, *209*
grills, **208–209**, *209*
Groove Weld tool and dialog, 265–266, *266*
groove welds, **265–266**, *266*
Ground Plane tool, 22–23
ground reflections, **22**
Ground Reflections tool and dialog, 22, 24
ground Shadows, 21
grounded components, **95**
guide rails, 158

H

Half Section View tool, 312
Hardware tab, **18**
Hatch (ANSI) layer, 115
Heads-Up Display settings, 19
Hem tool and dialog, 234–235, *235*
Hidden (ANSI) layer, 115–116
Hidden Narrow (ANSI) layer, 116
Hide All Constraints option, 68
highlighting components, **11**
highlights in lighting, 288
Hole and Thread Notes tool, **57–58**, *58–59*
hole patterns, **160**
linear, **160–161**, *161*
rectangular, **161–163**, *162–163*
Hole tool and dialog, 86–87, *87*, 160
Hole View option, 149
holes
concentric, **86–87**, *87*
sketched, **88–89**, *89*
tables, **149–151**, *149–151*
Home view, 14
hooks, 210–211
Horizontal constraints, 68

I

iAssemblies, 317
converting assemblies to, **328–331**, *329–331*
documenting, **333–336**, *334–336*
using, **331–333**, *332–333*
iAssembly Author dialog, 328–330, *329–330*
icons, **5**
IDW files, 19
Illumination tab, 287
Illustration visual style, 21, *21*
iLogic Browser, 339, *340*
iLogic Limits Wizard dialog, 341, *341*
iLogic tools, **336–337**
accessing, **339–340**, *340*
parameters
multivalue, **338–339**, *339*
in other parameters, **337–338**, *337*
rules, 317
creating, **340–342**, *341–342*
feature control through, **344–345**, *344*
parameter linking through, **342–343**, *343*
usability, **345–347**, *345–347*
images, creating, **282–284**, *282–284*
Import Destination Options dialog, 232, 302, *302*
Import/Export buttons, **16**
importing
AutoCAD data, **301–303**, *302–303*
data formats for, **297–299**
editing imported data, **304–308**, *305–308*
Inactive Component Appearance settings, 18
inference lines, 37, *37*
Insert AutoCAD tool, 232
Insert constraint, **98**, *99*
Insert Cylinder tool, 183
Insert dialog, 245–247, *245*, *247*
Insert Frame tool and dialog, 245, 247
Insert Members Between Points Placement option, 246
Insert Members On Edges Placement option, 245, 247
Inspect tab, 181

interface, **1**
  Application Options dialog, **15–19**, *17–18*
  graphical user interface. *See* graphical user interface
  project files, **28–31**, *29–31*
  visualization tools. *See* visualization tools
intermittent fillet welds, **268**, *268*
Inventor Fusion, 304–305
Inventor Project Wizard, 28, *29*
iPart Author dialog, 323–325, *324–325*
iParts, 317
  assemblies of, **326–328**, *326–328*
  creating, **323–326**, *324–325*
  documenting, **333–336**, *334–336*
.ipj extension, 29
iProperties dialog, 270–271, *270*
Island tab, 208
islands, 208

J

joints for metal frames
  defining, **248**, *249*
  Trim to Frame tool, **249–250**, *250*

K

Key Connection Generator, **189–192**, *189–191*
Key Connection tool, 189
knobs, 327, *327*

L

layer properties, **114–115**
Leader Text tool, 139–140
leaders, 114
  balloons, 142–143
  text, **139–141**, *140*
Lengthen - Shorten Frame Member dialog, 253, *253*
Lengthen/Shorten tool, **253**, *253*
level-of-detail (LOD) representation, **177–178**, *178*
library features around bends, **227–229**, *227–229*
lighting
  applying, **287–288**, *288*
  styles, **26**
Lighting Styles tool, 287
Line tool
  sketches, 64–65
  tangent arcs, 80, *80*
linear holes placement, **160–161**, *161*
Link Parameters dialog, 322, *322*
linking parameters
  to external sources, **319–323**, *320–323*
  through rules, **342–343**, *343*
Lip tool and dialog, **203–204**, *203–204*
lips for plastic parts, **203–204**, *203–204*
Local Update icon, 320
LOD (level-of-detail) representation, **177–178**, *178*
Loft tool and dialog, 156, *156–157*
Lofted Flange tool and dialog, 231, *231*
lofts
  features, **156–157**, *156–157*
  paths between points, **154–155**, *155*
Loop Select mode, 222
loops, 210

M

machined features for weldments, **269**, *269*
Make Components: Bodies dialog, 214
Make Components: Selection dialog, 214, *214*
Make Direction icon, 313
Make Multi-Value option, 338
Manage panel, 7, *7*
Manage tab, 110–112
marking menus, **14–15**, *15*
Marking mode, 15
Mate constraint, **96–97**, *96–97*
Material Types dialog, 185
materials
  defining, **119–120**
  parametric solid models, **77**
  styles for sheet metal parts, **217–220**, *218–220*
matrix parts lists, 335

Maximize button, 11
Measure Distance option, 181
Measure tool, 181
Member Scope active, 325, *325*
members, metal frame
  on curves, **247–248**, *247*
  on edges, **244–246**, *245*
  between points, **246–247**, *246*
Menu mode, 15
menus, marking, **14–15**, *15*
MEP content, **313–315**, *313–315*
metal frames, **243**
  beginning, **243–244**, *244*
  Change tool, **254–255**, *254–255*
  frame skeleton, **255–256**, *256–257*
  joints, **248–250**, *249–250*
  Lengthen/Shorten tool, **253**, *253*
  members
    on curves, **247–248**, *247*
    on edges, **244–246**, *245*
    between points, **246–247**, *246*
  notches, **251–252**, *252*
  Trim/Extend tool, **250–251**, *251*
Metric tab, 34, *35*, 64, 93
Minimum Frame Rate (Hz) setting, 18
Mirror A Solid option, 168
Mirror Components: File Names dialog, 193
Mirror Components: Status dialog, 192, *193*
Mirror Components tool, 192
Mirror tool and dialog, 168, *168*
mirroring
  components, **192–194**, *193*
  efficiency from, **168**, *168*
Miter tool and dialog, **248**, *249*
model dimensions, **59–60**, *60*
Model State tab, 271
modifying project files, **29–31**, *29–31*
Monochrome visual style, 21, *21*
motion. *See* animation
Motion tab, 95, 196, *197*
movies, **290**
  assembly relationship, **293–294**, *294*
  component motion, **292–293**, *292–293*
  rendering, **295**
  timeline and camera, **290–292**, *290–291*
multibody models, 202
multivalue parameters, **338–339**, *339*

N

named parameters, **318–319**, *318–319*
Network Bandwidth setting, 295
neutral 3D data, **304**, *304*
New dialog for assemblies, 93
New Derived Substitute Part dialog, 311, *311*
New Faces option, 167
New File tool and dialog
  Metric tab, 34, *35*
  parametric sketches, 64
  templates, 123–124, *123*
  welds, 271
New Local Style dialog, 111, *111*
  color, 118, *118*
  sheet metal, 218
New Scene Style option, 286
New Single User Project option, 28
New Style option
  color, 118
  dimensions, 113
  materials, 120
New tool, 276
90 Degree bend option, 225
Notch dialog, 251–252, *252*
notches for metal frames, **251–252**, *252*
notes. *See* annotations

O

Object Default Sets, **111**
Object Visibility option, 321
objects
  defaults, **115–116**
  shadows, 21
Offset From Plane option, 169
Offset tool, 233

offset work planes, **169–170**, *169*
Open Existing File tool, 277
open profiles
  sheet metal parts, **226**, *226*, **230**, *230*
  working with, **172**, *172–173*
Open tool and dialog, 4
  3D data, 304
  files, 3–4, *4*
  iAssemblies, 331
  surface textures, 285
opening
  3D data, **304**, *304*
  AutoCAD data, **300–301**, *300–301*
  files, **3–4**, *4*
Optimize For Single Selection option, 85
Orbit tool, 276
ordinate dimensions, **147–149**, *148–149*
Ordinate tool, **55–56**, *56*, 148
Ordinate Set tool, **55–56**, *56*, 147–148
Origin 3D indicator, 12
Origin folder, 8
orthographic projection, 25
Output tab
  rendering, 295
  still images, 283

P

Pan tool, **12**
panels
  arranging, **7**, *7–8*
  overview, **5–6**, *5–6*
Parallel Key Connection Generator dialog, **189–192**, *189*
Parameter Limits icon, 341
parameters
  linking
    to external sources, **319–323**, *320–323*
    through rules, **342–343**, *343*
  multivalue, **338–339**, *339*
  named, **318–319**, *318–319*
  in other parameters, **337–338**, *337*
Parameters tool and dialog, 318–321, *319–320*, 337–339, *337*
parametric sketches, **63–64**, *64*
  alerts, **73–75**, *74–75*
  concept layout, **72–73**, *72*
  creating, **64–67**, *65–66*
  dimensions, **69–70**
  geometric constraints, **67–69**, *67–69*
  patterns, **71**, *71*
parametric solid models, 8, **75**
  chamfers, **91–92**, *91–92*
  circular patterns, **87–88**, *88*
  concentric holes, **86–87**, *87*
  connecting to other sketch data, **81–83**, *82–83*
  edge fillets, **77–78**, *78*, **89–90**, *90*
  extruding base features, **76–77**, *76*
  material and color, **77**
  revolve feature, **83–84**, *84*
  sketch geometry, **78–81**, *79–81*
  sketched holes, **88–89**, *89*
  sweep features, **84–86**, *85–86*
Part tab, **19**
parts
  drawing behavior, **131–132**, *131–132*
  lists, **144–146**, *145–146*, 335–336, *336*
  plastic. *See* plastic parts
  sheet metal. *See* sheet metal parts
  visibility, **133**, *133*
Parts List tool and dialog, 144–145, *145*, 335
Path And Guide Surface option, 158
paths
  files, 29–30, *30–31*
  loft, **154–155**, *155*
  sweep, 158
patterns
  circular, **87–88**, *88*
  creating, **71**, *71*
  flat, **236–238**, *236–237*
  hole, **160**
    linear, **160–161**, *161*
    rectangular, **161–163**, *162–163*
Perpendicular Constraint tool, 68
perspective projection, 25

Physical tab
automated text, 139
bead properties, 270, *270*
materials, 77, 119
Pipe Connector dialog, 313, *313*
Place Constraint dialog, 95–101, *95–97*, *99–100*
adaptivity feature, 181, *181*
assembly motion, 196, *197*
iParts, *327–328*
links, 320
Place From Content Center dialog, 102, *102*
Place iAssembly dialog, 332
Place Standard iPart dialog, 326, *326*
Place Views tab, 35, 37, 129–130, 135–136
plastic parts, **199**
assemblies, **214–215**, *214–215*
bosses, **204–206**, *205–206*
decals, **212–213**, *213*
embossing and engraving, **209–210**, *210*
fillets, **207–208**, *208*
grills, **208–209**, *209*
lips, **203–204**, *203–204*
rests, **206**, *207*
ribs, **211–212**, *212*
Snap Fit tool, **210–211**, *211*
splitting bodies, **202–203**, *202*
surfaces, **200–201**, *201*
Play tool, 292
Play Animation tool, 293
points
loft paths between, **154–155**, *155*
metal frame members between, **246–247**, *246*
Pos Reps tool, 292
positional representations, **178**
Power Transmission panel, 182–184
Precision And Tolerance tab, 57, 146
Precision field, 57
Preparation tool, 262
Presentation color scheme, 16–17, *17*
Press Brake option, 231
priorities of parts, 131–133
profiles
sheet metal parts, **226**, *226*, **230**, *230*
working with, **172**, *172–173*
project files, **28**
creating, **28–29**, *29*
modifying, **29–31**, *29–31*
Project Flat Pattern option, 229
Project Geometry tool
faces, 167
punch tools, 229
sketches, 81, 154–155
Project to 3D Sketch dialog, *154*
Projected View tool, 127–128
projected views
description, 34
placing, **35–36**, *36–37*
projecting
3D sketches, **154**, *154*
views, **127–128**, *128*
Projects dialog, 28–30, *30*
properties, layer, **114–115**
prototyping, **308–310**, *309*
Pull Direction option, 203
Pull Width tab, 346
Punch Tool dialog, 228, *228*
Punch Tool Directory dialog, 227–228
Punch Tool feature, 227

Q

Quantity Note icon, 58
Quick Access toolbar, 3, *3*
quick-start templates, **124**

R

Radial Fill option, 266
Railing Basic folder, 4
rails
guide, 158
options, 156
rapid prototyping, **308–310**, *309*

Realistic Color settings, 118
Realistic visual style, **20**, *20*
Record button, 281
rectangular hole patterns, **161–163**, *162–163*
Rectangular Pattern tool and dialog, 71, *71*, 161, *161*
Redundant Points dialog, 74, *74*
reflections, ground, **22**
Refold tool, 228
Remove Color Overrides option, 176
Remove Geometry By Visibility option, 311
Rename Scene Style dialog, 286
Render Animation tool and dialog, 295
Render Image tool and dialog, 282–284, 286, 288–289
Render Output window, 283
Render tab, 282
rendering
  animation, **295**
  camera settings, **288–290**, *289*
  lighting, **287–288**, *288*
  scenery changes, **286**, *287*
  still images, **282–284**, *282–284*
  surface textures, **284–285**, *285*
Replace Face tool, 167–168
replacing faces, **167–168**, *167*
representations, 175
  level-of-detail, **177–178**, *178*
  positional, **178**
  view, **176**, *176*
Representations folder, 8
Reset Ribbon option, 7
Rest tool and dialog, 206, *207*
rests, **206**, *207*
Retrieve Dimensions dialog, 59
retrieving model dimensions, **59–60**, *60*
Return To Inventor icon, 308
Return tool, 9
Reverse Overlap option, 222
Review tab, 300, *300*
Revit MEP add-on, 310
revolve feature, **84**, *84*
Revolve tool, 83–84, *84*
Rib tool and dialog, 209, 211–212, *212*
Ribbon, 2
  options, **5–6**, *5–6*
  panel arrangement, **7**, *7–8*
ribs for plastic parts, **211–212**, *212*
Rip tool and dialog, 231–232, *232*
Rotate tool, 43
Rotate View dialog, 43, *43*
rotating views, 43, *43*
Rule Fillet tool and dialog, 207–208, *208*
Rule Name dialog, 340
rules, iLogic tools, 317
  creating, **340–342**, *341–342*
  feature control through, **344–345**, *344*
  parameter linking through, **342–343**, *343*
  usability, **345–347**, *345–347*
Rules tab, 339
Run Rule option, 340

S

Save As dialog, 281
Save Copy As dialog
  rapid prototyping, 308, 310
  sheet metal parts, 240–241
Save Copy As option, 297
Save Copy As Template dialog, 122–124, *123*
Save Styles To Style Library dialog, 117, *117*
saving
  exploded views, 281
  formats for, 297
  sheet metal parts, 240–241
  styles, **116–117**, *117*
  templates, **122–124**, *123*
Scene Styles dialog, 286
scenery changes, **286**, *287*
screws, 327, *328*
Sculpt tool and dialog, 200–201, *201*
Section Participation settings, 132
Section View tool and dialog, 38, *38*, 312
section views
  description, 34
  placing, **37–38**, *37–39*
  projecting, **127–128**, *128*

securing design, **310–313**, *311–312*
See All Degrees Of Freedom option, 68
Select Assembly dialog, 277
Select by Size dialog, *177*
Select Component dialog, 124, *124*
Select Member dialog, 335
Select Other option, 181, *181*
Select View Set button, 143
Selection filters, 133
Set Camera button, 281
Set Current View As Home option, 14
Setbacks tab, 165–166, *165*
Shaded visual style, 20, *20*
Shaded With Hidden Edges visual style, 20, *20*
shadows
  lighting, 288
  overview, **21–22**, *22*
  scenes, 286
Shadows tool and dialog, 23
Shaft Component Generator dialog, 182–184, *182–184*
Shaft Generator design accelerators, **182–184**, *182–183*
Shaft tool, 182
shafts
  calculating and graphing characteristics, *184–185*
  Key Connection Generator, **189–192**, *189–191*
Shape tab
  flanges, 222–224, *222–224*
  Snap Fit, 211
Share Sketch option, 78
Sharp Shadows option, 288
Shear Force graphs, 185
Sheet Metal Defaults tool and dialog, 218, *218*, 236
sheet metal parts, **217**
  bends, **227–229**, *227–229*
  building from middle, **224–226**, *225*
  documenting, **238–241**, *239–240*
  existing designs, **232–233**, *233*
  faces, **221**, *221*
  finishing touches, **234–235**, *234–235*
  flat pattern, **236–238**, *236–237*
  material styles, **217–220**, *218–220*
  open profiles, **226**, *226*, **230**, *230*
  sides, **221–224**, *222–224*
  transitions, **230–232**, *231–232*
Sheet Metal Rule menu, 236
Sheet tab, *219*
Sheet Metal tab, 218, 224, 227, 231, 236
Shell tool and dialog, 159, *159*
shells, **159–160**, *159–160*
Show All Constraints option, 67
Show All Parameters option, 322
Show Facet Edges icon, 309
Show Shadows option, 286
Shrinkwrap model, 311, *311*
Shrinkwrap Substitute tool, 310
sides of sheet metal parts, **221–224**, *222–224*
Simplification mode, 311
simplifying design, **310–313**, *311–312*
Single Hole Pull feature, 345
Size tab for punch tools, 228, *228*
Sketch Doctor, **73–75**, *74*
Sketch Doctor - Example dialog, 75
Sketch Doctor - Treat dialog, 74, *74*
Sketch tab, 129
  Application Options, **19**
  ribbon, 5, *5*
sketched holes placement, **88–89**, *89*
sketches
  geometry reuse, **78–81**, *79–81*
  parametric, **63–64**, *64*
    alerts, **73–75**, *74–75*
    concept layout, **72–73**, *72*
    creating, **64–67**, *65–66*
    dimensions, **69–70**
    geometric constraints, **67–69**, *67–69*
    patterns, **71**, *71*
  projecting, **154**, *154*
  in views, **129**, *129*
Slice Graphics option, 79, 167, *167*
Slice tool, 136
slice view, **136**, *136*

Snap Fit tool and dialog, **210–211**, *211*
Software Graphics option, 18
solid models. *See* parametric solid models
Spar tab, 209, *209*
special symbols, **140–141**, *141*
Specify As Measurement option, 292
Specify Time option, 294
Split Solid option, 202
Split tool, 202
splitting bodies, **202–203**, *202*
Spur Gear tool, 186
Spur Gears Component Generator dialog, **186–188**, *186–187*
standards
  styles. *See* styles
  templates
    quick-start, **124**
    saving, **122–124**, *123*
Start time in animation, 292
status bar, **14**
Steel material, 185
stereolithography (STL) model, 308–309
still images, **282–284**, *282–284*
Stitch tool, 201
stitch welds, **268**, *268*
stitching surfaces together, **200–201**, *201*
STL (stereolithography) model, 308–309
STL File Save As Options dialog, 309
Style And Standard Editor dialog
  color, **117–119**, *119*
  dimensions, 112, *113*
  elements, 110, *110*
  layers, 114
  materials, 119
  Object Default Sets, 111, 115
  sheet meal, 218–220, *219–220*
Style From Base option, 45, 131
Style tab, 284
styles, **109**
  color, **117–119**, *119*
  dimensions, **112–114**, *114*
  layer properties, **114–115**
  lighting, **26**
  materials, **119–120**, **217–220**, *218–220*
  Object Default Sets, **111**, **115–116**
  saving, **116–117**, *117*
  scene, 286
  standards, **109–110**
  still images, 284
  surface, 285, *285*
  text, **112**, *113*
  title blocks, **120–122**, *120–122*
  visual, **20–21**, *20–21*, **23–25**, *24–25*
Styles And Standards panel, 116, *117*
suppression
  elements, **134**, *134*
  iParts, 324, *324*
  views, **133–134**
Suppression tab, 324, *324*
Surface Styles dialog, 285, *285*
Surface Texture dialog, 141, *141*
Surface tool, 140–141
surfaces
  guide, 158
  plastic
    sculpting, **200**, *201*
    stitching together, **200–201**, *201*
  styles, 285, *285*
  textures, 141, *141*, **284–285**, *285*
Sweep tool, 84–85, 158
sweeps, **84–85**, *85–86*, **158**, *158*
Symbol tool, 141
symbols
  special, **140–141**, *141*
  welds, **266–267**, *267*
symmetry planes, 307, *307*
System Type setting, 313–314

T

Table dialog, 333
Table Column Chooser dialog, 333–334, *334*
table-driven products, **317**
  documenting, **333–336**, *334–336*
  iAssemblies
    converting assemblies to, **328–331**, *329–331*
    using, **331–333**, *332–333*

iParts
assemblies of, **326–328**, *326–328*
creating, **323–326**, *324–325*
parameters
linking, **319–323**, *320–323*
named, **318–319**, *318–319*
Table Replace option, 329
Table tab, 332
tables, hole, **149–151**, *149–151*
tabs
file, **10–11**, *10–11*
overview, **5–6**, *5–6*
tangent arcs, 80–81, *80*
Tangent constraint, **100–101**
tapers
as draft angle, 166
rests, 207
templates
quick-start, **124**
saving, **122–124**, *123*
text
automated, **139**
dimensions and notes, **112**, *113*
leaders, **139–140**, *140*
title blocks, **120–122**, *120–122*
Text Off option, 7
Text tab, 114
textures, surface, 141, *141*, **284–285**, *285*
Thread group, 105
3D data, **303**
editing, **304–308**, *305–308*
opening, **304**, *304*
3D geometry. *See* parametric solid models
3D sketches, projecting, **154**, *154*
Three Point Rectangle tool, 82, *82*
thumbnail icon, 95
timeline for movies, **290–292**, *290*
title bar, 2
title blocks, **120–122**, *120–122*
Title Blocks folder, 120
titles of panels, 6, *6*
Tolerance Method setting, 146
tools, **5**
tooltips, 7, *8*
Top Boss feature, 170
Transformation setting, 278
Transitional constraint, **101**, *101*
Transitional tab, 95
transitions for sheet metal, **230–232**, *231–232*
Tree tab, 332
triads, 306, 320–321, *321*
Trim - Extend To Face dialog, *251*
Trim/Extend tool, **250–251**, *251*
Trim to Frame tool and dialog, **249–250**, *250*
Tweak Components tool and dialog, 277, *277*
Two Distances option, 91

U

UCS triads, 320–321, *321*
Unfold tool and dialog, 227, *227*
Unique Number setting, 238
Unit Type dialog, 338
Unsuppress Rule option, 340
Use Bump Image option, 285
Use Style Library option, 29
user interface. *See* interface
User Parameters icon, 341

V

Value List Editor, 338, *339*
Vertical constraints, 69
View History tool, 12
View Preview Display option, 19
ViewCube tool, **12–14**, *13–14*, 94, *94*
views, **127**
alignment, **41–44**, *42–44*
appearance, **44–46**, *45*
associativity, **60–61**, *61*
auxiliary, 34, **39–40**, *39–40*
base and projected, **35–36**, *36–37*
break, **135–136**, *135–136*
break out, **130**, *130*
custom, **137–138**, *137–138*

detail, **40**, *41*, **46–50**, *47–50*
editing, **41–46**, *42–45*
element suppression, **134**, *134*
exploded, **275–281**, *276–277*, *279–281*
new drawings, **34–35**, *35*
parts, **33**
drawing behavior, **131–132**, *131–132*
visibility, **133**, *133*
projecting, **127–128**, *128*
representations, **176**, *176*
section, **37–38**, *37–39*
sketches in, **129**, *129*
slice, **136**, *136*
suppression, **133–134**
types, **34**
visibility of parts, **133**, *133*
visualization tools, **20**
Color Override option, **26–27**, *27*
ground reflections, **22**
lighting, **26**
shadows, **21–22**, *22*
styles, **20–21**, *20–21*, **23–25**, *24–25*

W

washers, 277–278
Watercolor style, 23
Weld Bead Material setting, 260
Weld Calculator tool, 260
Weld tab, 260, 264–265
weldments, **259**
converting assemblies, **259–260**
cosmetic and symbols, **266–267**, *267*
documenting, **270–273**, *270–272*
drawings, **271–273**, *272*
fillet, **260–261**, *261*, **263–265**, *264–265*, **268**, *268*
groove, **265–266**, *266*
machined features for, **269**, *269*
preparation, **262–263**, *262–263*
WHQL-certified graphic drivers, 18
Wireframe With Hidden Edges visual style, 21, *21*
Wizard tab for rules, 341
Work Features panel, 169, *169*
Work Plane tool, 169

X

XY Plane, 168

Y

YZ plane, 168

Z

Zoom tool, **12**